SEQUENCE LISTING

<110> Cano, Carlos Antonio Durante
Nieto, Enrique Gerardo Guillen
Acosta, Anabel Alvarez
Munoz, Luis Emilio Carpio
Vazquez, Diogenes Quintana
Rodriguez, Carmen Elena Gomez Rodriguez
Rodriguez, Recardo de la Caridad Siva
Galvez, Consuelo Nazabal
Angulo, Maria de Jesus Leal
Dunn, Alejandro Miguel Martin

<120> System for the Expression of Heterologous Antigens as Fusion Proteins

<130> LEXSA P-13DIV2

<140> 09/612,925
<141> 2000-07-10

<150> 08/930,917
<151> 1997-09-16

<150> CU97/00001
<151> 1997-01-17

<160> 21

<170> PatentIn version 3.1

<210> 1
<211> 47
<212> PRT
<213> Neisseria meningitidis

<400> 1

Met Leu Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Glu Thr Asp
35 40 45

<210> 2
<211> 18
<212> PRT
<213> Neisseria meningitidis

<400> 2

Thr Thr Cys Cys Ala Thr Gly Gly Thr Ala Gly Ala Thr Ala Ala Ala
1 5 10 15

Ala Gly

<210> 3
<211> 18
<212> PRT
<213> Neisseria meningitidis

<400> 3

Thr Thr Thr Cys Thr Ala Gly Ala Thr Cys Cys Ala Ala Ala Gly Thr
1 5 10 15

Ala Ala

<210> 4
<211> 26
<212> PRT
<213> Neisseria meningitidis

<400> 4

Gly Gly Cys Gly Gly Thr Thr Cys Thr Gly Cys Cys Gly Ala Thr Thr
1 5 10 15

Ala Ala Gly Gly Ala Thr Cys Cys Gly Ala
20 25

<210> 5
<211> 146
<212> PRT
<213> Neisseria meningitidis

<400> 5

Thr Thr Cys Cys Ala Thr Gly Gly Thr Ala Gly Ala Thr Ala Ala Ala
1 5 10 15

Ala Gly Ala Ala Thr Gly Gly Cys Thr Thr Thr Ala Gly Thr Thr Gly
20 25 30

Ala Ala Thr Thr Gly Ala Ala Ala Gly Thr Gly Cys Cys Cys Gly Ala
35 40 45

Cys Ala Thr Thr Gly Gly Cys Gly Gly Ala Cys Ala Cys Gly Ala Ala
50 55 60

Ala Ala Thr Gly Thr Ala Gly Ala Thr Ala Thr Thr Ala Thr Cys Gly
65 70 75 80

Cys Gly Gly Thr Thr Gly Ala Ala Gly Thr Ala Ala Ala Cys Gly Thr
85 90 95

Gly Gly Gly Cys Gly Ala Cys Ala Cys Thr Ala Thr Thr Gly Cys Thr
100 105 110

Gly Thr Gly Gly Ala Cys Gly Ala Thr Ala Cys Cys Cys Thr Gly Ala
115 120 125

Thr Thr Ala Cys Thr Thr Thr Gly Gly Ala Thr Cys Thr Ala Gly Ala
130 135 140

Ala Ala

145

<210> 6
<211> 47
<212> PRT
<213> Neisseria meningitidis

<400> 6

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Glu
35 40 45

<210> 7
<211> 16
<212> PRT
<213> Neisseria meningitidis

<400> 7

Cys Thr Ala Gly Ala Thr Thr Thr Gly Ala Thr Ala Thr Cys Ala Gly
1 5 10 15

<210> 8
<211> 16
<212> PRT
<213> Neisseria meningitidis

<400> 8

Gly Ala Thr Cys Cys Thr Gly Ala Thr Ala Thr Cys Ala Ala Ala Thr
1 5 10 15

<210> 9
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 9

Ser Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr
1 5 10 15

<210> 10
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 10

Arg Gln Ser Thr Pro Ile Gly Leu Gly Gln Ala Leu Tyr Thr Thr
1 5 10 15

<210> 11
<211> 15
<212> PRT

<213> Human immunodeficiency virus type 1

<400> 11

Arg Lys Ser Ile Thr Lys Gly Pro Gly Arg Val Ile Tyr Ala Thr
1 5 10 15

<210> 12
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 12

Arg Lys Arg Ile His Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr
1 5 10 15

<210> 13
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 13

Arg Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr
1 5 10 15

<210> 14
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 14

Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile
1 5 10 15

<210> 15
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 15

Thr Ser Ile Thr Ile Gly Pro Gly Gln Val Phe Tyr Arg Thr Gly
1 5 10 15

<210> 16
<211> 15
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 16

Arg Gln Arg Thr Ser Ile Gly Gln Gly Gln Ala Leu Tyr Thr Thr
1 5 10 15

<210> 17
<211> 5
<212> PRT
<213> Artificial

<220>

<223> flexible spacer that divides the V3 epitopes in MEP TAB3, TAB4, TAB9, AND TAB13

<400> 17

Ala Gly Gly Gly Ala
1 5

<210> 18
<211> 141
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 18

Cys Ala Pro Thr Ser Ser Ser Thr Ala Gln Thr Gln Leu Gln Leu Glu
1 5 10 15

His Leu Leu Leu Asp Leu Gln Ile Phe Leu Ser Arg Gly Ile Arg Ile
20 25 30

Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly Gly Gly Ala Arg Gln
35 40 45

Ser Thr Pro Ile Gly Leu Gly Gly Ala Leu Tyr Thr Thr Ala Gly Gly
50 55 60

Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly Arg Val Ile Tyr Ala
65 70 75 80

Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His Ile Gly Pro Gly Arg
85 90 95

Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile Thr Met
100 105 110

Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly Gly Gly Ala Ser Ile
115 120 125

Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val Thr Ile
130 135 140

<210> 19
<211> 162
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 19

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Asp Ser
35 40 45

Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly
50 55 60

Gly Gly Ala Arg Gln Ser Thr Pro Ile Gly Leu Gly Gly Ala Leu Tyr
65 70 75 80

Thr Thr Ala Gly Gly Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly
85 90 95

Arg Val Ile Tyr Ala Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His
100 105 110

Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg
115 120 125

Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly
130 135 140

Gly Gly Ala Ser Ile Arg Ile Gln Arg Gly Pro Gly Arg Ala Phe Val
145 150 155 160

Thr Ile

<210> 20
<211> 202
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 20

Met Val Asp Lys Arg Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile
1 5 10 15

Gly Gly His Glu Asn Val Asp Ile Ile Ala Val Glu Val Asn Val Gly
20 25 30

Asp Thr Ile Ala Val Asp Asp Thr Leu Ile Thr Leu Asp Leu Asp Ser
35 40 45

Arg Gly Ile Arg Ile Gly Pro Gly Arg Ala Ile Leu Ala Thr Ala Gly
50 55 60

Gly Gly Ala Arg Gln Ser Thr Pro Ile Gly Leu Gly Gln Ala Leu Tyr
65 70 75 80

Thr Thr Ala Gly Gly Gly Ala Arg Lys Ser Ile Thr Lys Gly Pro Gly
85 90 95

Arg Val Ile Tyr Ala Thr Ala Gly Gly Gly Ala Arg Lys Arg Ile His
100 105 110

Ile Gly Pro Gly Arg Ala Phe Tyr Thr Thr Ala Gly Gly Gly Ala Arg
115 120 125

Lys Arg Ile Thr Met Gly Pro Gly Arg Val Tyr Tyr Thr Thr Ala Gly
130 135 140

Gly Gly Ala Arg Gln Arg Thr Ser Ile Gly Gln Gly Gln Ala Leu Tyr
145 150 155 160

Thr Thr Ala Gly Gly Gly Ala Thr Ser Ile Thr Ile Gly Pro Gly Gln
165 170 175

Val Phe Tyr Arg Thr Gly Ala Gly Gly Gly Ala Ser Ile Arg Ile Gln
180 185 190

Arg Gly Pro Gly Arg Ala Phe Val Thr Ile
195 200

<210> 21
<211> 368
<212> DNA
<213> Human immunodeficiency virus type 1

<400> 21
tctagactcg agaggcattc gtatcggccc aggtcgcgca attttagcaa cagctggcgg 60

tggcgcacgt caatctaccc ctattggttt aggtcaggct ctgtatacga ctgccggcgg 120

tggtgcgcgc aaaagtatca ccaagggtcc aggccgcgtc atttacgcca ccgcgggcgg 180

cggtgcccgt aagcgtatcc acattggccc aggccgtgca ttctatacta cagcaggtgg 240

tggcgcacgt aaacgcatca ctatgggtcc tggtcgcgtc tattacacga ccgctggcgg 300

cggtgctagc attcgcatcc aacgcggccc tggtcgtgca tttgtgacca tatgataacg 360

cgggatcc 368